

ABSTRACT

A positive resist composition that includes a base resin component (A) and an acid generator component (B), wherein the component (A) is a copolymer that includes 5 structural units (a-1), which are derived from an (α -lower alkyl) acrylate ester that contains an acid dissociable, dissolution inhibiting group, and also contains an aliphatic cyclic group, structural units (a-2), which are derived from an (α -lower alkyl) acrylate ester that contains a γ -butyrolactone residue, and structural units (a-3), which are derived from an (α -lower alkyl) acrylate ester that contains a hydroxyl group-containing aliphatic 10 polycyclic hydrocarbon group, and the glass transition temperature (Tg) of the copolymer is within a range from 100 to 170°C; together with a method for forming a resist pattern using a lithography process that includes the steps of applying a chemically amplified positive resist composition to a substrate to provide a resist film, conducting selective exposure of the resist film, performing post exposure baking (PEB), and then conducting 15 alkali developing, wherein the PEB temperature in the lithography process is set to a temperature within $\pm 2^\circ\text{C}$ of the PEB temperature at which the line and space pattern formed by this lithography process reaches a maximum.